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CLAIMS

What is claimed is:

10 [New] A process for the production of wear-resistant, coated surfaces with at least two electrodes connected to a voltage source which are disposed adjacent a reaction space through which an electrolyte flows in which the surface to be coated is located, the process comprising:

selectively reversing flow of the electrolyte at least once during the coating process for an amount of time as a function of the form of the surface of the workpiece before or during the coating process; and

thereby forming an oxide layer (Al_2O_3) on a surface selected from the group consisting of aluminum and an aluminum alloy.

11 [New] The process according to claim 1, wherein the method comprises reversing flow based on precalculated flow times.

12 [New] The process according to claim 1, wherein the electrolyte flows in a certain direction is determined as a function of the form of the surface of the workpiece before the coating process.

13 [New] The process according to claim 10, wherein the method comprises coating a surface which is curved.

14 [New] The process according to claim 10, wherein the method comprises coating a

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15 (New) The process according to claim 10, wherein the method comprises selectively reversing flow to develop different layer thicknesses on the surface to be coated.

16. (New) The process according to claim 10, wherein the method comprises selecting a workpiece having a frusto-conical void formed therein and selectively reversing the flow of electrolyte to form an oxide layer defining a generally cylindrical void.

17. ~~4~~(New) The process according to claim 10, wherein the method comprises disposing at least two connecting lines in communication with the working surface, where a first connecting line serves as the inlet and a second connecting line serves as the outlet for the electrolyte which can be transported with the aid of a feed line and at least two electrodes connected to a voltage source which are disposed in communication with the reaction space, and a change-over device for selectively reversing flow through the inlet and the outlet.

18 (New)] The process according to claim 10 wherein the method comprises forming one electrode from the surface to be coated.

19 (New) A workpiece having defining a valve hole with a surface which is generally conical and an oxide coating with a distribution of layer thicknesses so that the coated surface has a cylindrical form.

20 ~~(New)~~ An apparatus for the production of wear-resistant surfaces with a reaction space comprising to at least two connecting lines where a first connecting line serves as the inlet and a second connecting line serves as the outlet for an electrolyte which can be transported with the aid of a feed line and at least two electrodes connected to a voltage source which are disposed in communication with the reaction space, and a change-over device for selectively reversing flow through the inlet and the outlet.

22. (New) The apparatus according to claim 20 wherein at least one electrode is formed from a working surface to be coated, the working surface being selected from the group consisting of aluminum and an aluminum alloy.

22 [New] The apparatus according to claim 20, wherein the working surface is curved.

23. ~~[(New)]~~ The apparatus according to claim 22, wherein the working surface is cylindrical.

24 **[New]** The apparatus according to claim 23, wherein the working surface defines a plane.